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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/317,336	05/24/1999	BRYAN JEFFERY MOLES	STA.WTL.001	8986

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EXAMINER

MOORE, JAMES K

ART UNIT PAPER NUMBER

2682

DATE MAILED: 11/29/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/317,336

Applicant(s)

MOLES ET AL.

Examiner

James K Moore

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes ~~incorporated~~ therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.

DETAILED ACTION

Drawings

1. The drawings are objected to because "Comparator" is misspelled (see Figure 5, block 560). Correction is required.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification must disclose that the second threshold value may be determined by calculating the E_c/I_o associated with a pilot channel. See claim 16.

Claim Objections

3. Claim 14 is objected to because of the following informalities: "an" should be inserted before "Idle" in line 3. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 14 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "said FER" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said determined FER" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney (U.S. Patent No. 6,085,085) in view of Curtis (U.S. Patent No. 6,021,328) and Kallin (U.S. Patent No. 5,119,502).

Regarding claim 1, Blakeney discloses a method within a multi-mode mobile station that is capable of selectively communicating over a first radio system and a second radio system, wherein the first radio system is preferred over the second radio system. The method comprises the steps of determining whether the preferred first radio system is available to provide mobile service and accessing the preferred first

radio system. See Figures 2A and 2B (blocks 54-60), col. 2, line 27 through col. 3, line 32, and col. 7, lines 15-27.

Blakeney does not disclose that the method comprises: receiving a plurality of messages over a control channel associated with the preferred first radio system; determining the error rate associated with the plurality of messages; comparing the determined error rate with a predetermined threshold value; and if the determined error rate exceeds the predetermined threshold value, then accessing the less preferred second radio system. However, Curtis also discloses a method within a multi-mode mobile station that is capable of selectively communicating over a first radio system (CDMA network) and a second radio system (AMPS network). The method comprises receiving a plurality of messages over a channel (forward traffic channel) associated with the first radio system; determining the error rate ($FER_{forward}$) associated with the plurality of messages; comparing the determined error rate with a predetermined threshold value ($FER_{max_forward}$); and if the determined error rate exceeds the predetermined threshold value, then accessing the second radio system. The method enables a call to be handed off to a second radio system as soon as the RF link between a mobile unit and a first radio system has degraded beyond an acceptable level. See col. 4, lines 12-55. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Blakeney with Curtis, in order to handoff the mobile unit when the RF link with the first radio system has degraded beyond an acceptable level.

Blakeney in view of Curtis does not teach that the plurality of messages are messages received over a control channel. Curtis teaches that the plurality of messages are received over a traffic channel during a call. However, Kallin discloses that a mobile station will receive a plurality of messages (pages) over a control channel (paging channel) when it is in an idle state, i.e., when no active call is taking place. Kallin also discloses that the quality of the control channel can be monitored so that when the quality is reduced, the mobile station may be handed off to a base station with a stronger signal, in order to reduce the probability of missing incoming calls. See col. 1, line 62 through col. 2, line 46. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Blakeney in view of Curtis with Kallin, such that the plurality of messages are messages received over a control channel, so that the mobile station may be handed off even if it is in an idle state, thereby reducing the chance of missing an incoming call.

Regarding claim 3, Blakeney in view of Curtis and Kallin teaches all of the limitations as applied to claim 1 above. Blakeney incorporates the subject matter of Ault (U.S. Patent No. 5,754,542) into the reference. See col. 2, lines 10-16. Ault discloses that CDMA system determination is performed by determining whether a pilot signal from a radio system is detectable. See col. 9, lines 37-49.

Regarding claim 4, Blakeney in view of Curtis and Kallin teaches all of the limitations as applied to claim 1 above, and Kallin's control channel messages are page channel messages. See col. 1, line 62 through col. 2, line 46.

Regarding claim 5, Blakeney in view of Curtis and Kallin teaches all of the limitations as applied to claim 1 above, and Curtis discloses that the error rate comprises an FER associated with the plurality of messages. See col. 4, lines 12-55.

Regarding claim 6, Blakeney in view of Curtis and Kallin teaches all of the limitations as applied to claim 5 above, and Kallin discloses that the quality of the control channel is monitored while the mobile station is in an Idle state. See col. 1, line 62 through col. 2, line 46.

Regarding claim 7, Blakeney in view of Curtis and Kallin teaches all of the limitations as applied to claim 5 above, and Curtis discloses that the step of accessing the second radio system is performed after the determined FER ($FER_{forward}$) exceeds the predetermined threshold value ($FER_{max_forward}$) over a plurality of consecutive time periods. See col. 4, lines 12-55.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney in view of Curtis and Kallin as applied to claim 1 above, and further in view of Sawyer (U.S. Patent No. 5,548,818).

Regarding claim 2, Blakeney in view of Curtis and Kallin teaches all of the limitations as applied to claim 1 above, but does not teach that the step of determining whether the preferred first radio system is available comprises the step of determining whether an acceptable number of the messages are received within a predetermined time period. However, Sawyer discloses a method for determining whether a radio system is available that comprises determining whether an acceptable number of

messages (beacon packets) are received within a predetermined time period. This prevents a mobile station from making the mistake of determining that a radio system is available if the communication with the radio system is only intermittent. See col. 10, lines 1-31. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Blakeney in view of Curtis and Kallin with Sawyer, such that the step of determining whether the preferred first radio system is available comprises the step of determining whether an acceptable number of the messages are received within a predetermined time period, in order to prevent the mobile station from determining that the preferred first radio system is available if communication with the first radio system is only intermittent.

9. Claims 8, 10, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawyer in view of Curtis.

Regarding claim 8, Sawyer discloses a method of selecting a radio system comprising: accessing a first radio system by a mobile station; periodically receiving a message signal (beacon packet) over a forward channel associated with the first radio system; determining the number of message signals received within a first predetermined time period; and determining that the number of message signals received within the first predetermined time period meets a first threshold value. See col. 10, lines 1-31. Sawyer does not disclose that the mobile station is a multi-mode mobile station. Sawyer also does not disclose that the method comprises determining the error rate associated with the message signals received within a second

predetermined time period and accessing a second radio system in response to a determination that the error rate associated with the message signals exceeds a second threshold value. However, Curtis discloses a multi-mode mobile station and a method of selectively communicating with the multi-mode mobile station over a first radio system (CDMA network) and a second radio system (AMPS network). The method comprises determining the error rate ($FER_{forward}$) associated with message signals received over a forward channel associated with the first radio system within a predetermined time period, and accessing the second radio system in response to a determination that the error rate exceeds a threshold value ($FER_{max_forward}$). The method enables a call to be handed off to a second radio system as soon as the RF link between a mobile unit and a first radio system has degraded beyond an acceptable level. See col. 4, lines 12-55. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer with Curtis, such that the method comprises determining the error rate associated with the message signals received within a second predetermined time period and accessing a second radio system in response to a determination that the error rate exceeds a second threshold value, in order to handoff the mobile unit when the RF link with the first radio system has degraded beyond an acceptable level.

Regarding claim 10, Sawyer in view of Curtis teaches all of the limitations as applied to claim 8 above, and Curtis discloses that the error rate comprises an FER associated with the received message signals. See col. 4, lines 12-55.

Regarding claim 15, Sawyer in view of Curtis teaches all of the limitations as applied to claim 8 above, and Curtis discloses that the step of accessing the second radio system is performed after a determined FER ($FER_{forward}$) exceeds the predetermined threshold value ($FER_{max_forward}$) over a plurality of time periods (window of time). See col. 4, lines 12-55.

Regarding claim 16, Sawyer in view of Curtis teaches all of the limitations as applied to claim 8 above, but does not teach that the second threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel. However, the examiner takes Official Notice that it is well known in the art that the error rate of a signal received on a channel is directly correlated to the E_c/I_o ratio of the channel. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer in view of Curtis, such that the second threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel, in order to provide an accurate basis for determining whether the signal has degraded to an unacceptable level.

10. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawyer in view of Curtis as applied to claim 8 above, and further in view of Kallin.

Regarding claims 9 and 14, Sawyer in view of Curtis teaches all of the limitations as applied to claim 8 above, but does not teach that the message signal is a page message received over a page channel, or that the step of determining the error rate is performed while the multi-mode mobile station is in an Idle state. However, Kallin discloses that a mobile station will receive page messages over a paging channel when

it is in an idle state, i.e., when no active call is taking place. Kallin also discloses that the quality of the page channel can be monitored so that when the quality is reduced, the mobile station may be handed off to a base station with a stronger signal, in order to reduce the probability of missing incoming calls. See col. 1, line 62 through col. 2, line 46. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Sawyer in view of Curtis with Kallin, such that message signal is a page message received over a page channel and the FER is performed while the multi-mode mobile station is in an Idle state, so that the mobile station may be handed off even if it is not involved with an active call, thereby reducing the chance of missing an incoming call.

11. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawyer in view of Curtis as applied to claim 8 above, and further in view of Blakeney.

Regarding claim 11, Sawyer in view of Curtis teaches all of the limitations as applied to claim 8 above, but does not teach that the first radio system is preferred over the second radio system within the multi-mode mobile station. However, Blakeney discloses a multi-mode mobile station in which a first radio system is preferred over a second radio system for reasons of cost of service, quality of service, or support of unique features. See col. 4, lines 11-39. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer in view of Curtis with Blakeney, such that the first radio system is preferred over the second radio system within the multi-mode mobile station, in order to allow the radio system that provides a

lower cost of service, higher quality of service, and/or greater support of unique features to be selected by the mobile station.

Regarding claims 12 and 13, Sawyer in view of Curtis and Blakeney teaches all of the limitations as applied to claim 11 above, and Blakeney further discloses that a CDMA system provides superior service to an AMPS system. See col. 5, lines 57-60. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Sawyer in view of Curtis and Blakeney, such that the first system comprises a CDMA system and the second system comprises an AMPS system, in order to receive superior service.

12. Claims 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney in view of Tiedemann (U.S. Patent No. 5,999,816) and Curtis.

Regarding claim 17, Blakeney discloses a multi-mode mobile station for selectively communicating over a first radio system and a second radio system, wherein the first radio system is preferred over the second radio system. The multi-mode mobile station comprises means for determining whether the first radio system is available to provide mobile service, means for accessing the first radio system, and means for receiving messages over a forward channel associated with the first radio system. See Figures 2A and 2B (blocks 54-60), col. 2, line 27 through col. 3, line 32, and col. 7, lines 15-27.

Blakeney does not disclose that the multi-mode mobile station comprises: means for determining an error rate associated with the received messages; means for comparing the determined error rate against a particular threshold value; and means for accessing the second radio system in response to a determination that the determined error rate exceeds the particular threshold value.

However, Tiedemann discloses a mobile station comprising means for determining an error rate associated with messages received over a forward channel and means for comparing the determined error rate against a particular threshold value. Power control of the forward channel is accomplished based on the results of the comparison. See col. 17, lines 34-50. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Blakeney with Tiedemann, such that the multi-mode mobile station comprises means for determining an error rate associated with the received messages and means for comparing the determined error rate against a particular threshold value, in order to enable control of the forward channel power.

Blakeney in view of Tiedemann does not teach that the multi-mode mobile station comprises means for accessing the second radio system in response to a determination that the determined error rate exceeds the particular threshold value. However, Curtis discloses a multi-mode mobile station for selectively communicating over a first radio system (CDMA network) and a second radio system (AMPS network) comprising means for accessing the second radio system in response to a determination that a determined error rate ($FER_{forward}$) exceeds a particular threshold value ($FER_{max_forward}$). The multi-mode mobile station is thus enabled to be handed off to a second radio

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system as soon as the RF link between the mobile station and the first radio system has degraded beyond an acceptable level. See col. 4, lines 12-55. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Blakeney in view of Tiedemann with Curtis, such that the multi-mode mobile station comprises means for accessing the second radio system in response to a determination that the determined error rate exceeds the particular threshold value, in order to handoff the mobile unit when the RF link with the first radio system has degraded beyond an acceptable level.

Regarding claim 19, Blakeney in view of Tiedemann and Curtis teaches all of the limitations as applied to claim 17 above, and Tiedemann also discloses that the error rate is a FER. See col. 17, lines 34-50.

Regarding claim 20, Blakeney in view of Tiedemann and Curtis teaches all of the limitations as applied to claim 17 above, but does not teach that the threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel. However, the examiner takes Official Notice that it is well known in the art that the error rate of a signal received on a channel is directly correlated to the E_c/I_o ratio of the channel. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer in view of Curtis, such that the second threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel, in order to provide an accurate basis for determining whether the signal has degraded to an unacceptable level.

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13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney in view of Tiedemann and Curtis as applied to claim 17 above, and further in view of Kallin.

Regarding claim 18, Blakeney in view of Tiedemann and Curtis teaches all of the limitations as applied to claim 17 above, but does not teach that the messages are page messages received over a page channel. However, Kallin discloses that a mobile station will receive page messages over a page channel when it is in an idle state, i.e., when no active call is taking place. Kallin also discloses that the quality of the control channel can be monitored so that when the quality is reduced, the mobile station may be handed off to a base station with a stronger signal, in order to reduce the probability of missing incoming calls. See col. 1, line 62 through col. 2, line 46. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Blakeney in view of Tiedemann and Curtis with Kallin, such that the messages are page messages received over a page channel, so that the mobile station may be handed off even if it is in an idle state, thereby reducing the chance of missing an incoming call.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken Moore, whose telephone number is (703) 308-6042. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached at (703) 308-6739.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:


(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ken Moore

11/9/01



VIVIAN CHANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600